

Single Level Adjustable Speed Switch: P/N R4901A

The R4901A is a standard 12 VDC, nonlatched, 100-5,000 Hertz, speed switch for use with sensor applications. Nonlatched means that once the unit is tripped, it will remain tripped only as long as the input frequency exceeds the trip point setting. Contact ISSPRO Inc. for other options such as 24V systems, ignition sensing, latching or other than standard frequency switch points. There is also a factory service to preset the trip and reset points if desired.

1. Calculate or estimate your set point to determine if it falls within the 100-5,000 Hertz adjustment range. If the frequency is out of range, contact Isspro Inc. for options.

a.) For Cable Driven Applications such as Speedometers:

$$\text{MPH} \times \text{Cable turns per mile} \times \text{Pulses per turn}/3600 = \text{Pulses per second or Hertz}$$

For example:

If you want to set off an alarm in a truck when the speed exceeds 55 mph and you were using an R8970 ISSPRO Sender.

$$55 \text{ MPH} \times 1,000 \text{ turns per mile (typical cable)} \times 30 \text{ pulses per turn (R8970)} / 3600 = 458 \text{ Hertz}$$

The R4901A will work for this application.

b.) For Sensor Driven Speedometer Applications:

$$\text{MPH} \times \text{Tire Revs per Mile} \times \text{Rear Axle Ratio} \times \text{Number of Sensor Teeth per Rev}/3600 = \text{Hertz per mile}$$

For example:

$$55 \text{ MPH} \times 500 \text{ Tire Revs per Mile} \times 3.77 \text{ Rear Axle Ratio} \times 16 \text{ teeth}/3600 = 461 \text{ Hertz per mile}$$

The R4901A will work for this application.

c.) For Sensor Drive Tachometers:

Flywheel Teeth x RPM trip point/60 – Set Point hertz

$$103 \text{ Teeth} \times 1800 \text{ RPM}/60 = 3090 \text{ Hertz}$$

The R4901A can be set at 1800 RPM on this application.

These are a few typical examples. Many others are possible. Contact ISSPRO if you need assistance.

2. Follow the wiring diagram to complete your installation. Adjustment directions are shown below and on the back page:

General Information:

Output Relay contacts- normally open (N/O), normally closed (N/C), and common (COM): The common contact switches from the normally closed to the normally open contact at and above trip point.

Output Rating (maximum): 1 amp @ 24 VDC resistive, 0.3 amp @ 24 VDC inductive (coil load)

IMPORTANT: *If amp load exceeds the above amperage, an optional relay such as the R7021 is necessary.*

Operating Voltage:

12 V units: 10-16 VDC

24 V units: 16-30 VDC

Reverse Voltage Protection:

- 12 V units: -12 VDC indefinitely, -400 V transients
- 24 V units: -24 VDC indefinitely, -400 V transients

All units are standard non-latched.

Adjusting the Trip Point:

The R4901A can be adjusted with a small screwdriver. Remove the cover to access the adjustment. See diagram for location of adjustment screw. **PLEASE NOTE:** There is a (25 turn) multi-turn pot. Turning pot counter clockwise (CCW) increases the speed setting (Hertz Trip Point) and CW decreases the speed setting. Check operation after adjustment to ensure correct operation turning CW decreases the speed setting. Check after adjustment to ensure correct operation. The best method is to use a signal generator (if available) to supply the desired trip frequency, and then adjust the Multi – Turn Pot until the relay trips. You can tell if the relay trips by using an ohmmeter, a test light or just listening for it. In many cases, a signal generator is not available. In these cases, simply install the unit and run the vehicle or engine at the desired trip point. Then adjust the screw until the relay trips. Close the unit to complete your installation. Retest for correct set point and operation.

Adjusting the reset point (Hysteresis):

Hysteresis is the difference between the trip point and the reset point on non-latched units. An example would be that the trip point is 55 MPH but hysteresis is adjusted so that the unit resets at 50 MPH. To adjust the Hysteresis, first apply a frequency to trip the unit. Reduce the frequency to where you want the unit to reset. Carefully adjust the Reset Point Adjustment, single turn, pot slightly until the unit resets then re-test. Turn CW to lessen the amount of Hysteresis and CCW to increase hysteresis.

Installation Hints:

- (1) Unit is not sealed...mount in cab, away from harsh environments.
- (2) Ground the enclosure to help shield against CB or other radio interference.

